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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,963	12/14/2001	Darrell C. Conklin	98-40D1	1934

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EXAMINER	
HARRIS, ALANA M	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,963	CONKLIN, DARRELL C.	
	Examiner	Art Unit	
	Alana M. Harris, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 9,10,12,14-18 and 20-28 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 9, 10, 12, 14-18 and 20-28 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/20/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 9, 10, 12, 14-18 and 20-28 are pending.

Claims 1-8, 11, 13 and 19 have been cancelled.

Claims 9 and 12 have been amended.

Claims 20-28 have been added.

Claims 9, 10, 12, 14-18 and 20-28 are examined on the merits.

Specification

2. The disclosure is objected to because of the following informality: it contains a drawing and a brief description of the drawing containing amino acid residue not properly identifying with a SEQ ID number. 37 CFR 1.82(d) requires the use of the assigned sequence identifier (SEQ ID NO) in all instances where the description of a patent application refers to a sequence and whenever a sequence or fragment thereof is claimed (see MPEP 2422.03). Correction is required.

Claim Objections

3. Claims 20, 21, 24 and 25 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 20 and 21 cite a protein comprising and consisting of residues 1-59 of SEQ ID NO: 2, respectively, which are broader than the claim limitations of claim 9. Claim 9 sets forth

a protein with only residues 6 through 56 encoded by the segment contained in the cultured cell of claim 17.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 9, 10, 12, 14-18 and 20-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claim language embodies a peptide encoded by a DNA segment encoding a protein of from 51 to 81 amino acid residues comprising a sequence of amino acid residues of SEQ ID NO: 2 from residue 6 through residue 56. The specification clearly establishes a zkun6 polypeptide, SEQ ID NO: 2 consisting of 59 amino acid residues, which comprises a Kunitz domain (residues 6 to 56), see page 5, lines 16-21; page 10, lines 20-27 and Figure 1. According to the specification the full-length protein, SEQ ID NO: 2 is a proteinase inhibitor comprising a Kunitz domain which can be obtained by conventional cloning procedures, see page 2, lines 3-8; page 23, lines 6-12. Applicants assert the full-length proteins can be used in the treatment or prevention of certain conditions, in combination with other therapeutic agents, as well as in *in vitro* assays,

see page 26, lines 14-33; page 34, line 33-page 38, line 18; and page 42, line 4-page 43, line 13.

It seems that Applicants specification only provides enabling disclosure of the production of the Kunitz domain within the full-length protein and there is discussion of implementing the polypeptide in well-known techniques, such as the preparation of polyclonal and monoclonal antibodies, see page 41, line 19-page 45, line 1. Applicants' claims read on the production of a peptide segment from the polynucleotide that encodes the full-length zkun6 polypeptide. This segment may encode a peptide, however it will not encode the zkun6 protein or the Kunitz domain which according to Applicants are capable of exerting activities such as usefulness in antithrombotic medicaments, see page 36, line 14-page 37, line 2. The specification does not provide sufficient guidance as to the implementation of SEQ ID NO: 2, nor a peptide fragment from 51 to 81 residues which comprises residue 6 through residue 56. It is not clear if a functional product will be produced with the residues set forth in the claims.

Lederman et al. (Molecular Immunology 28: 1171-1181, 1991) disclose that a single amino acid substitution in a common allele ablates binding of a monoclonal antibody (see entire document). For example, Li et al. (PNAS 77: 3211-3214, 1980) disclose that dissociation of immunoreactivity from other biological activities when constructing analogs (see entire document). Because of this lack of guidance, the extended experimentation that would be required to determine which modifications would be acceptable to retain occluding structural and functional activity, and the fact that the relationship between the sequence of a protein/peptide and its tertiary structure

(i.e. its activity) are not well understood and are not predictable (e.g. see Ngo et al.; in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al., (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495). It would require an undue amount of experimentation for one of skill in the art to implement the claimed invention for the crucial analysis of prognostication and detection.

The peptide produced from the polynucleotide segment has the high probability of not maintaining the biological activity or structural specificity of zKun6 polypeptides and consequently the production of the segment for implementation in Applicants' assays and suggested therapies is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 9, 10, 12, 14-18 and 20-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 9, 14, 20, 21 and 23-25 are vague and indefinite in the recitation "a DNA segment encoding a protein of from 51 to 81 amino acid residues comprising a sequence of amino acid sequences as shown in SEQ ID NO: 2 from residue 6 through 56". It is not clear how the protein of 51 to 81 residues can possibly be from a sequence of 51 amino acid residues set forth in the claim, "SEQ ID NO: 2 from residue 6 through 56". Likewise, a protein that is from 51 to 59 residues in length cannot be

encoded from a DNA segment, which encodes a protein from 51 to 81 amino acid residues, 30 amino acids. The claim limitations are confusing and Applicants should clarify.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alana M. Harris, Ph.D. whose telephone number is (571)272-0831. The examiner works a flexible schedule, however she can normally be reached between the hours of 6:30 am to 5:30 pm with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on (571) 272-0787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALANA M. HARRIS, PH.D.
PRIMARY EXAMINER

Alana M. Harris, Ph.D.
26 April 2005